

IN THE CLAIMS:

Claim 1 (Previously Presented): A cesium vapor emitter, comprising:

a housing having at least one chamber therein and at least one channel, wherein the channel has a size wide enough to introduce a desired amount of cesium vapor;

a cesium reservoir placed in the chamber, wherein the cesium reservoir is filled with a cesium slurry and a plug located between the cesium slurry and the channel, thereby emitting the cesium vapor from the cesium slurry through the channel; and

a stopper securing the cesium reservoir in the chamber, so that the cesium vapor is emitted through the channel.

Claim 2 (Previously Presented): The cesium vapor emitter according to claim 1, wherein the cesium slurry includes Cemite™.

Claim 3 (Original): The cesium vapor emitter according to claim 1, wherein the plug is formed of a cesium pellet.

Claim 4 (Original): The cesium vapor emitter according to claim 3, wherein the cesium pellet includes a sintered cesium-mordenite.

Claim 5 (Original): The cesium vapor emitter according to claim 4, wherein the sintered cesium-mordenite has a composition of $\text{Cs}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 10\text{SiO}_2$.

Claim 6 (Previously Presented): The cesium vapor emitter according to claim 1, wherein the cesium slurry is a mixture of cesium-mordenite powder 50%-liquid cesium 50% by weight.

Claim 7 (Currently Amended): The cesium vapor emitter according to claim 1, wherein the housing has a shape of one of annular ring, rectangular, and dual strip ~~types~~ shapes.

Claim 8 (Previously Presented): The cesium vapor emitter according to claim 1, wherein the cesium reservoir is heated up to a range of about 0 to 400°C.

Claim 9 (Currently Amended): The cesium vapor emitter according to claim 1, further comprising an ~~insert~~ inert gas supplier in ~~close~~ proximity to the cesium reservoir for supplying an inert gas with the cesium vapor.

Claim 10 (Previously Presented): A negative ion sputter source, comprising:

an electrode receiving a certain electrical potential;

a sputter target electrically coupled to the electrode, having a more negative electrical potential than the electrode, and providing a plurality of source negative ions;

and

a cesium vapor emitter located close enough to provide a plurality of cesium vapor onto a reacting surface of the sputter target, wherein the cesium vapor emitter includes a housing having at least one chamber therein and at least one channel, wherein the channel has a size wide enough to introduce a desired amount of the cesium vapor and is located in close proximity to the sputter target and a cesium reservoir placed in the chamber, wherein the cesium reservoir is filled with a cesium slurry and a plug located between the cesium slurry and the channel, and a stopper securing the cesium reservoir in the chamber, so that the cesium vapor is emitted through the channel.

Claim 11 (Original): The cesium vapor emitter according to claim 10, wherein the plug is formed of a cesium pellet.

Claim 12 (Previously Presented): The cesium ion source according to claim 11, wherein the cesium slurry includes Cemite™.

Claim 13 (Original): The cesium vapor emitter according to claim 11, wherein the cesium pellet includes a sintered cesium-mordenite.

Claim 14 (Currently Amended): The cesium vapor emitter according to claim 13, wherein the sintered ~~cesium-mordenite~~ cesium-mordenite has a composition of $\text{Cs}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 10\text{SiO}_2$.

Claim 15 (Currently Amended): The cesium vapor emitter according to claim 10, wherein the cesium ~~pellet~~ slurry is a mixture of cesium-mordenite powder 50%-liquid cesium 50% by weight.

Claim 16 (Currently Amended): The cesium vapor emitter according to claim 10, wherein the housing has a shape of one of annular ring, rectangular, and dual strip ~~types~~ shapes.

Claim 17 (Previously Presented): The cesium vapor emitter according to claim 10, wherein the cesium reservoir is heated up to a range of about 0 to 400°C.

Claim 18 (Currently Amended): The cesium vapor emitter according to claim 10, further comprising an ~~insert~~ inert gas supplier in close proximity to the cesium reservoir for supplying an inert gas with the cesium vapor.

Claim 19 (Withdrawn): A method of fabricating a cesium vapor emitter, comprising:

- preparing a stabilized cesium slurry;
- introducing the cesium slurry into a cesium reservoir; and
- sealing the cesium reservoir with a cesium pellet plug by using vacuum pressing.

Claim 20 (Withdrawn): The method according to claim 19, wherein the preparing a stabilized cesium slurry includes:

- mixing sodium-mordenite and cesium-chloride;
- heating the mixed sodium-mordenite and cesium-chloride;
- filtering the heated mixture through a vacuum frit;
- drying a residual powder in a hot vacuum oven;
- heating the dried powder high enough to stabilize a cesium-mordenite powder;

and

- mixing the cesium-mordenite powder with liquid cesium under an anti-oxidant environment to obtain the cesium slurry.

Claim 21 (Withdrawn): The method according to claim 20, wherein the mixed sodium-mordenite and cesium-chloride are heated at about 80°C.

Claim 22 (Withdrawn): The method according to claim 20, wherein the dried powder is heated at least at about 1050°C.

Claim 23 (Withdrawn): The method according to claim 20, wherein the cesium-mordenite powder and the liquid cesium is mixed with the same amount by weight.

Claim 24 (Withdrawn): The method according to claim 19, wherein the cesium pellet plug includes a cesium pellet.

Claim 25 (Withdrawn): The method according to claim 24, wherein the cesium pellet includes a sintered cesium-mordenite.

Claim 26 (Withdrawn): The method according to claim 25, wherein the sintered cesium-mordenite has a composition of $\text{Cs}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 10\text{SiO}_2$.

Claim 27 (Withdrawn): A method of fabricating a stabilized cesium pellet, comprising:

mixing sodium-mordenite and cesium-chloride;

heating the mixed sodium-mordenite and cesium-chloride;

filtering the heated mixture through a vacuum frit;

drying a residual powder in a hot vacuum oven;

heating the dried powder high enough to stabilize a cesium-mordenite powder;

grinding the stabilized cesium-mordenite powder;

molding by press the cesium-mordenite powder to make a pellet; and
sintering the press molded pellet.

Claim 28 (Withdrawn): The method according to claim 27, wherein the mixed sodium-mordenite and cesium-chloride are heated at about 80°C.

Claim 29 (Withdrawn): The method according to claim 27, wherein the dried powder is heated at least at about 1050°C.

Claim 30 (Canceled).

Claim 31 (Canceled).

Claim 32 (Canceled).

Claim 33 (Withdrawn): The press molded pellet according to claim 27, wherein the press molded cesium-mordenite is sintered at about 1200-1500°C.